

extending from the dam wall on the down stream side, wherein the end of said discharge pipe section is disposed at an elevation height sufficiently below the reservoir water level to avail adequate hydrostatic head at the intake of the hydraulic drive assembly to push the reservoir water and entrained sediments to pass through the hydraulic drive unit forcefully to drive the dredge head and to pass through the conduit system freely for discharging them on the dam down stream side;

- a valve located at a convenient location in the conduit means for shut off and for flow throttling as a means of regulating the rotation speed of the dredge head; and
- a support and manipulating means such as that by suspending the dredge assembly housing with cables from a mobile overhead crane to support and move the dredge assembly around the reservoir bottom.

B. Fig. 2 and Fig. 3 of subject application are modified to include some additional notations. Revised drawings are attached herewith.

C. Items 3 and 4 of subject communication are properly taken cared of by the amended claims.

(Claims Rejections based on 35 USC § 102 are responded below)

D. Item 6 of communication citing US 914,399 by Fancher as a basis for rejection. The applicant contends that applicant's inventions are not about the feasibility of recovery of water energy nor the mechanical construction of such machinery for harnessing the water energy as claimed by Fancher, but about a conduit system for dams to facilitate the discharge of sediments from dam bottom, and about a novel hydraulic powered dredging system usable inside the reservoir through the manipulation of conduit arrangement and a novel arrangement of the hydraulic drive assembly. These novel ideas could not be anticipated from Fancher's patent.

E. Item 7 citing US 3,09,491 by Pugh. The applicant submits the same contentions as stated in (D) above. Applicant's inventions are not about the construction of or mounting means of turbine. Applicant's inventions are about the arrangement of the conduit system and the total system setup to enable a self-contained hydraulic powered mechanical system to perform mechanical work under water regardless of what type of hydraulic drive is to be employed as a component. It is the novel system setup that is making the applicant's invention work and it is the novel system setup that the invention is about.

F. Item 8 citing US 3,184,218 by Hochwalt et al. The applicant submits the same contentions as stated in (E) above.

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G. Item 9 citing US 4,165,467 by Atencio. Atencio's invention pertains to transformable hydroelectric assemblies and their installation for effective utilization of water energy. These hydroelectric assemblies are of stationery mounted with circulating water paths around each unit for selective operation. Atencio's invention has no relevancy to the applicant's invention or is connected in any way to the novel ideas presented by applicant's invention.

H. Item 10 citing US 4,182,123 by Veda. Veda's invention relates to a penstock which passes over the dam wall and employing siphon effect to draw the water from the reservoir to feed the hydroelectric generator. Such setup however is not capable of withdrawing water from deep bottom of the reservoir nor capable of discharging bottom sediments as provided by applicant's invention. Veda's invention would have no relevancy to applicant's Claim 3 invention.

I. Item 11 citing US 4,998,846 by Evstratov et al. Evstratov's invention with bottom conduit and extensive concrete block structure having hydroelectric unit installed in the bottom chamber of the structure can accomplish the same task as that provided by applicant's Claims 1 and 2 inventions. However, applicant's inventions provide several major improvements and advantages over prior art, namely:

- Evstratov's invention involves the installation of major and costly concrete structure for its practice. Such major structure is not even possible to be built for existing dams since such work will undermine the foundation integrity of the existing dams.
- Installing the hydroelectric unit under the concrete structure is difficult to install and to maintain, while the applicant's conduit system can be easily installed in existing dams or new dams and is much less costly to installed.
- Applicant's conduit system as described in Claims 1 and 2 does not require installing the hydroelectric unit under a big concrete structure at the reservoir bottom level. With applicant's conduit system, the hydroelectric units may be above ground and easily accessible. Most existing hydropower plants need not relocate their hydroelectric units when adopting the applicant's new conduit system.
- Applicant's conduit system may be in singular or in plurality, and may have new addition easily installed when desired. For a big dam, such flexibility is very desirable as multiple small units is much more cost effective and structurally simple to construct.
- Evstratov's invention is not relevant to applicant's Claim 3 invention.

J. US 4,264,105 by Thompson describes a dredging system operates by siphon action and having its outlet end disposed below the intake end level to provide continue operation. Thompson's system is only applicable to reservoirs at high altitude or a side of the reservoir has a steep drop. Secondly, it has no hydraulic driven dredge